

ZJER

ZIMBABWE JOURNAL OF EDUCATIONAL RESEARCH

Volume 23 Number 3, November 2011

ISSN 1013-3445

UNIVERSITY OF ZIMBABWE EDUCATION LIBRARY

**Tertiary Education and Gender Disparities in a Dollarised Economy: A Case Study
of the Faculty of Social Studies at the University of Zimbabwe.**

Tichaona Zivengwa, Fanuel Hazvina and Nobuhle Maphosa

**Evaluation of Barriers to the Integration of ICT in Teaching and Learning of Science
and Mathematics in Zimbabwe's Secondary Schools.**

Fred Zindi and Fenton Ruparanganda

**Student Teacher Perceptions of the Role of Classroom Mentors on Attachment
Teaching Practice: The Case at Morgan ZINTEC College.**

Manuel Rwodzi, Francis Muchenje, and Beatrice Bondai

**The Impact of Water Shortages on Educational Delivery in Selected Schools in
Harare East District**

Mavis Rufaro Chikoore and John Bowora

**Organisation, Quality and Challenges in the B. Ed Technical Education Degree
Industrial Attachment Course, University of Zimbabwe.**

Misozi Chiweshe, Emily Motsi and Xavier Edziwa

An Evaluation of the "New History" Phenomenon

Torerayi Moyo and Stanzia Moyo

**Teaching Science through the Science Technology and Society (STS) lens in
Zimbabwean High Schools: Opportunities and Constrains.**

Raviro Kasembe

The Zimbabwe Journal of Educational Research is published tri-annually by the University of Zimbabwe (UZ), Human Resources Research Centre (HRRC).

ISSN	:	1013-3445
Editor-in-Chief	:	Professor Fred Zindi

Editorial Board

**Prof. Levi M. Nyagura,
University of Zimbabwe
Prof. V. Nyawaranda,
University of Zimbabwe
Prof. Charles Nherera,
Women's University in Africa
Prof. C. Mararike
University of Zimbabwe**

Editorial Advisory Board

**Prof. Linda Chisholm
Witwatersrand University
Prof. Danston S. J. Mkandawire
University of Namibia
Prof. John Schwillie
Michigan State University**

For further information contact us on:

**Zimbabwe Journal of Educational Research
HRRC, Faculty of Education
University of Zimbabwe
P. O. Box MP167
Mount Pleasant
HARARE
Zimbabwe**

E-mail: hrrc@education.uz.ac.zw

Tel: +263-04-303271 or 303211/9 Extn: 16002/3

Volume 23 Number 3, November 2011

ISSN 1013-3445

CONTENTS

Tertiary Education and Gender Disparities in a Dollarised Economy: A Case Study of the Faculty of Social Studies at the University of Zimbabwe. Tichaona Zivengwa, Fanuel Hazvina and Nobuhle Maphosa	204
Evaluation of Barriers to the Integration of ICT in Teaching and Learning of Science and Mathematics in Zimbabwe's Secondary Schools. Fred Zindi and Fenton Ruparanganda	222
Student Teacher Perceptions of the Role of Classroom Mentors on Attachment Teaching Practice: The Case at Morgan ZINTEC College. Manuel Rwodzi, Francis Muchenje, and Beatrice Bondai	236
The Impact of Water Shortages on Educational Delivery in Selected Schools in Harare East District Mavis Rufaro Chikoore and John Bowora	259
Organisation, Quality and Challenges in the B. Ed Technical Education Degree Industrial Attachment Course, University of Zimbabwe. Misozi Chiweshe, Emily Motsi and Xavier Edziwa	276
An Evaluation of the "New History" Phenomenon Torerayi Moyo and Stanzia Moyo	302
Teaching Science through the Science Technology and Society (STS) lens in Zimbabwean High Schools: Opportunities and Constrains. Raviro Kasembe	314

The Impact of Water Shortages on Educational Delivery in Selected Schools in Harare East District

Mavis Rufaro Chikoore and John Bowora

Department of Technical Education, Department of Rural and Urban Planning University of Zimbabwe

ABSTRACT

The goal of the study was to investigate the impact of water shortages on educational delivery in selected schools in Harare East District. The population included school heads, teachers and pupils all drawn from selected schools of Harare East District. The sample consisted of five school heads, fifty teachers and one hundred pupils. Data was collected from school heads through semi-structured interviews. Questionnaires were administered to teachers. Group discussions were held with randomly selected pupils from the engaged schools. Direct observations were also done during the first half of the morning and afternoon sessions to establish the situation at the schools. The findings indicated that there was a high level of absenteeism and late coming by both teachers and pupils. A greater percentage of the teachers felt that the unavailability of water had serious effects on lesson delivery and general performance on practical subjects such as Home Economics, Agriculture and Science. It was observed that most of the schools had adopted a policy of ending each school day at break time for each session, because of water shortages. It was also observed that pupils were asked to bring water to school each day they came or else they would face the risk of being sent back home. It was recommended that the School Development Associations (SDAs), with the help from Ministry of Primary and Secondary Education as well as Non-Governmental Organisations (NGOs) should assist schools in their endeavours to ensure availability of clean water in their schools.

Background of the study

Water is a basic commodity that is vital to life, livelihood as well as to educational development (Mudenge, 1999). Lack of this precious commodity is a cause for concern in educational institutions such as schools, colleges and universities. The situation, without adequate water, can disrupt educational activities and pose a huge health hazard in learning institutions. The closure of the University of Zimbabwe for almost a year was a result of inadequacy of water (The Herald, 13 August, 2009). Many schools and colleges in Harare have not been operating at full capacity because of the intermittent water supplies. This left many responsible authorities in the schools and colleges apprehensive about the possibility of closing down. The situation of water crisis has been known to persist with many schools going for days without getting even a single drop of water. The task of supplying water to the growing schools population is stretching many local authorities to the limit. The local authorities are in no position to bear the increasing capital, operating and maintenance costs of catering for the projected growth of water requirements in schools and colleges. Both the government and the United Nations Children's Educational Fund (UNICEF) have already expressed fears of possible recurrence of cholera, citing little improvements in water provision and sanitary services in schools (The Herald, 22 January, 2010).

With respect to areas already under water reticulation, the supply was erratic, water cuts were experienced nearly everyday. The hardest hit areas in Harare included Mabvuku, Tafara and Chikurubi which were experiencing intermittent water supply everyday. School children and some residents in these areas were reported to be getting water from unprotected sources such as open wells and streams. The use of clean water for bathing, cleaning and washing in the home and at school had become a luxury in these areas therefore posing further health risks and compromising hygienic and educational standards.

Water vendors had since taken advantage of the situation by selling water to the residents (Zimbabwe Broadcasting Corporation – Main

News at 2000 hours, 08 May 2008). The urban poor in general and school children in particular were the hardest hit since the teachers got to school late and students sometimes missed lessons. Unavailability of water affected productive activities and this impacted negatively on educational development.

In some instances, students had to be sent back home because most of the toilets in their schools would have been closed, forcing them to relieve themselves in the surrounding bushes. The environment is simply not conducive to teaching and learning, instead, it is stifling. Some technical subjects teachers have been forced to suspend their practical lessons especially those that need water for their viability.

Both teachers and students had become demotivated and their morale had become very low. The duration of their teaching and learning was likely to be reduced therefore affecting syllabus coverage and eventually the quality of teaching and learning. It is the contention of this paper that high absenteeism, late coming and high staff turnover would persist as a result. This could only be controlled when policy makers recognize that the school infrastructure such as water sources and reservoirs are upgraded and improved to attract competent personnel.

Conceptual Framework

The water problems plaguing the developing countries can be attributed to the decaying water infrastructure that had become obsolete and inefficient (Katko, 1992). The water supply issues have had serious effects on educational development and quality of life in general. The water infrastructure which were originally designed for much smaller populations and limited use were becoming not only inadequate but also obsolete and require constant service to ensure effective functioning, (McKendrick, 1981).

Burst water pipes had become the order of the day in schools and colleges with leakages aggravating the water supply problem. The leakages, together with increasing water consumption rates as well as inefficient input caused pressure in the pipes, forcing them to collapse, thus interrupting water supply in educational institutions.

Statement of the problem

Water is the one of the key natural resources any living organism cannot do without, unless they are prepared to die. The City of Harare was facing huge challenges in water provision. It draws water from Lake Chivero and Seke Dam. In addition to the supply of water to residents of Harare, it also supplied Norton, Ruwa and Chitungwiza. Of late, the city has been overwhelmed by the increasing demand for the precious commodity and has been failing to provide regular supply of portable water in schools and colleges. This has negatively impacted on educational development, attendance by both teachers and pupils as well as the teaching and learning processes. High staff turnover was also experienced in the affected schools.

Justification of the Study

All living creation is dependent on the availability of water and human beings are not an exception (Scadder and Thayer, 2005). Water is essential to education, agriculture, mining, food, clothing and manufacturing industries, and at a more basic level, it is essential to life. With government agencies such as Zimbabwe National Water Authority (ZINWA) and city councils facing problems in management and maintenance of urban water supplies, it became necessary to search for ways that could improve the systems of the infrastructure without compromising the health of the community. There is need for access to clean water of adequate quantities. However, in the developing world, particularly in Zimbabwe, water supply was increasingly falling short of the recommended requirements. This had negatively impacted on the quality of education in schools particularly in Harare East District. Of major concern was the fact that the effects of water crises were wide and far reaching and threatened to cripple educational activities and health delivery systems. The information generated through this study is therefore expected to assist urban planners and policy makers to gain insights into the planning, management and maintenance of community water projects. The water crisis had not been given the attention it deserved hence the need to break the

silence by provoking responsible authorities to address the issue rather than just pay no heed to it.

Research Questions

The study sought to address the following research questions:

1. How prevalent is the water shortage phenomenon in schools in Harare?
2. What are the implications of the water shortage on the students' learning and teachers' performance of duty?
3. What is the position of responsible authorities on the problem of water shortage in schools?

Objectives

The following objectives were formulated as a guide to the study.

1. To establish the prevalence of the water shortage problem in schools in Harare.
2. To examine the implications of water shortage problem on teaching and learning in schools.
3. To determine the position of responsible authorities on the problem of water shortages in schools.

Methodology

Research Design

Cooper (2003) defined research design as the plan and structure of investigation conceived to obtain answers to research questions. A qualitative paradigm was followed utilizing a descriptive survey. It permits the study of things in their natural setting, (Best and Khan, 1993). It was used to study phenomena in their natural contexts and from the perspective of the participants. It allows the researcher to get right to the root of the problem through investigating attitudes of participants and would help explain the results narratively. The research paradigm aims at providing answers to questions such as who? what? and how? part of the topic. This enhances reliability, credibility and validity of the research.

Boxte and Jack (2008) explain that qualitative research is used to portray an accurate profile of persons, events, and situations. On this basis, the descriptive approach is relevant to this study as it intends to gather data explaining the extent to which water shortages can hinder the quality of teaching and learning process in schools. It further allows the researcher to come up with qualitative data. It also allows the researcher to collect primary and secondary data in order to come up with meaningful conclusions and recommendations.

Population and Sample

Schaeffer, Merdanhal and Ott, (1979) describe a population as all members of a well defined group of people, events or objectives. Leedy (1995) also explains that the large group which consists of all the defined members to be studied or the target group is the population. The population of this study was made up of only those schools facing critical water shortages in Harare East District. These included ten school heads, one hundred and thirty nine teachers, and five thousand eight hundred and ninety six pupils from the selected urban schools in Harare East District.

Purposive sampling was used to select the schools to be included the study because it allows the researcher to include only those schools believed to be critical to the research study. Two schools from low density suburbs and three from high density suburbs were involved. A sample consisting of fifty teachers (twenty males and thirty females because of the imbalance of male and female teachers in schools) were selected using stratified random sampling. One hundred pupils (fifty boys and fifty girls), and five heads of the targeted urban schools were randomly selected.

Data Collection Instruments

Survey methods gather data at a particular point in time with the intention of describing the nature of existing conditions (Cohen and Manion 1987). Data gathering instruments used in this research were questionnaires, interview guide and focused group discussions. Questionnaires were administered to the fifty teachers, interviews were conducted with the five school heads, and focused group

discussions were held with the pupils all at their respective schools. The questionnaire and interview guides required respondents to give reasons for their responses, thus, emphasizing the essence of the qualitative research paradigm.

Data Presentation and Interpretation

The study obtained quantitative and qualitative data which were presented in narrative form as discrete data with verbatim statements to substantiate the emerging themes. This approach was based on Patton (1990)'s argument that much of qualitative data comprise people and the words they say. The approach also enhances the quality of the data presented. The interpretation was based on the frequency of similar responses and this was related to the research questions and objectives that guided the study.

Findings

Prevalence of water shortage phenomenon

The study found out that the water problem phenomenon was prevalent in urban schools. Four of the five school heads indicated that the phenomenon was prevalent in their schools as supported by the following excerpts:

"We have gone without water for almost three years now, this problems does not affect my school only but the majority of the schools in this area."

"The water shortage problem has become a crisis, we have had virtually no water for the better part of the past three years."

"The water shortage is prevalent in our school and those around us as well, although nothing is said out, published or done about it."

This was also supported by information obtained from teacher questionnaires where 90% of them stated that the phenomenon was prevalent in their schools. Some of their responses included the following statements:

"We do not have water for domestic use at our homes since we are local residents, and at school there is no water again so we cannot keep the pupils for the whole day."

"Our school toilets have become out of bounds for everybody because they use the flush system yet there is no water."

"I cannot remember when we last had water in the school. For examination classes, we ask pupils to bring water from home otherwise we will not be able to cover all topics in the syllabus."

"Almost all practical work to be done in my subject needs water so we have not been doing any practical lessons since I do not know when."

This was further supported by information from group discussion with pupils who pointed out their failure to use toilets, and then being asked to bring water from home or risk being sent back because there was no water in the school.

Implications of the water shortage problem in schools

Of particular interest to the study were the perceptions of teachers and school heads who concurred that the water crisis was disrupting school programmes and the environment was simply no longer conducive to teaching and learning. More than 90% of the pupils also indicated that they were not learning much since they were sent home at break-time almost every day because there would be no water for drinking, washing hands and flushing toilets. Pupils were actually barred from using toilets at school hence the need to send them home early. This was leading to a serious health hazard since some of the pupils would relieve themselves behind surrounding bushes.

It was found out that in some schools, pupils were asked to bring two litres of water to school every day, failure to do so would lead to one being sent back home. In such schools, a high rate of absenteeism and late coming was observed. The cleanliness of the water brought

was also questionable since the residential community was facing similar water problems. The pupils indicated that they fetched most of their water from streams and unprotected wells so that they would be allowed to enter the school gate. Pupils would absent themselves from school as a result of poor health in the form of water contaminated diseases, or failure to secure water to bring to school, or their uniforms would be too dirty to be worn. Some said they would come late because they would be hunting for the water from far places, or waiting in long queues at boreholes for their turn to fetch the water. This obviously impacted negatively on the quality of teaching and learning.

Practical subject teachers for Food and Nutrition, Fashion and Fabrics and Sciences said they had no option but to use the water brought by pupils to keep their lessons going although its safety was questionable and the water was still inadequate. They had resorted to limiting the number of practical lessons and increasing sizes of groups for these lessons in order to cut down on water quantities needed. This compromised the quality of educational delivery.

The Agriculture lessons were hardest hit since they needed more water for their practical lessons to be viable. They were forced to theorise practical lessons until students are in form four when they had to carry out practical projects. Fashion and Fabrics was not spared since most of their course-work projects were characterized by soiling and distinct stuffy smell (from dust and sweat) since the pupils would handle their work with unwashed hands most of the time. With Food and Nutrition, pupils had to do their washing up at home. The majority of the teachers (92%) indicated that it was difficult for them to cover all topics in the syllabus because they could not keep pupils in the school beyond break time. All the school heads admitted that they had to give priority to exam classes to remain in school till end of day. This was done in effort to try and increase syllabus coverage.

The sentiments from all the groups of respondents indicated that the water crisis had a negative impact on attendance, punctuality,

syllabus coverage, effective teaching and learning, as well as health conditions for teachers, pupils and school heads.

It was also found out that the acute water shortage in schools had a bearing on motivation of both teachers and pupils. The teachers said they found their schools to be a very difficult environment to work in. They argued that they did not have the most important resource that is water, therefore would be faced with dirty and tired pupils, and had little time to cover their syllabi. As for the pupils, they were demotivated by the fact that they would be too tired to concentrate on their school work. They feared that most of their learning, especially in practical subjects, was theorized therefore compromised. Their time for lessons was very short (half a day) and could not be compared to that of pupils in other schools, who were going to sit the same public examinations with them. Four of the five school heads indicated that they were experiencing a high staff turnover. Responding to the issue of staff turnover, 60% of the teachers cited embarrassment and shame as a result of attaining very poor results each year. Their argument was that everyone wants to be associated with success rather than failure. They all however did not leave out the issue of water shortages as one of the major reasons for their departure from their work stations.

The Position of the Responsible Authorities on the Water Shortage Problems in Schools

The study has shown that the Ministry of Education, Sport and Culture is aware of the water problems in schools as shown by some of the school heads' responses which include:

"The Ministry is aware that we send pupils back home if there is no water for health reasons."

"We sought permission from the Ministry to ask pupils to bring water in containers to school to make their learning viable. Considering the magnitude of the problem, permission was granted."

"The Ministry has allowed us to waiver the regulation of crossing out of the register, pupils who absent themselves for a maximum of seven conservative days due to this water crisis."

The question that arises then is, "Is it proper for the Ministry of Education to allow the head of school to send pupils home if there is no water in the school?" According to the Herald (22 June 2009), the state does not allow local authorities to create conditions that are conducive to the outbreak of water-borne diseases as was the case with cholera in 2008.

On the question of sinking boreholes, digging protected wells, and constructing water tanks, all the school heads cited financial problems as the major stumbling block. They indicated that they were no longer receiving government grants as was the case in the past. With the little fees and levies charged on pupils, most of whom fail to pay; the funds raised could not cater for such big projects.

Discussion

Water is a fundamental requirement for life, its shortage can have disastrous consequences on mankind. The human body cannot survive without water since it constitutes an average of 70% of the body composition (Will, 1997). Knog as cited in Gleick (1998:158) emphasizes this point by stating, "Water is a basic human right, water is the origin of all living things, that is, the giver of life." Echoing the same sentiments, Ryan and Cooper (2001) view water as one of the basic needs of human nature. This shows that man is highly dependent on water for survival. In addition, Faniran (1981) points out that man has various thirsts, his immediate thirst, that of drinking water is most crucial.

The WHO Information Series on School Health (2004) emphasises adequacy of clean water at all schools to ensure protection of the health of learners which was not the case with the schools under study. The prevalence of water shortages to such high levels in schools is therefore a serious violation of human rights. It has been established that pupils are barred from using toilets, yet the use of

toilets is a physiological need which one cannot avoid. This has led to pupils using near-by bushes, thus posing another serious health risk in the form of land pollution and may lead to an outbreak of water related illnesses.

Realisation of the aims of the school curriculum is highly dependent on issues at the core of human existence, and these include water (Ryan and Cooper, 2001). Cookery lessons were carried out with unclean water, yet pupils are to taste the food, thus putting the pupils' lives at risk of contracting water borne diseases. Inadequacy of water in practical lessons results in compromising hygienic standards. The washing of dishes that was said to be done at home is examinable, this practice denies the pupils the opportunity to have supervised wash-ups before examination sessions. The Agriculture students were in a similar predicament, as they only exercised practical Agriculture during their final year at secondary school and to the minimum, this obviously minimized their potential. As for Fashion and Fabrics pupils, there was the risk of being assured of losing marks on general cleanliness unless their teachers were really discrete in planning and preparing for their lessons. All this affects the quality of results hence Soler, Wearmouth and Reid (2002) cited water as one of the social factors impacting on the quality of education delivered at a particular learning centre.

Without water, the school environment is rendered not conducive to teaching and learning. This environmental condition has potent effects on the teachers' performance and pupils' attitudes towards their school work. They need to relate to each other effectively since this has an impact on pupil's achievement, other educational and social gains (Sergiovanani and Carver, 1980) and most importantly, educational delivery. It should be noted that the greater part of the day is spent at one's place of work (for teachers and school heads) and of learning (for pupils), and if that environment is hostile, both parties become demotivated therefore can hardly perform. According to Maslow (1970), safety and security are part and parcel of human existence. If one feels insecure and unsafe, they can hardly perform to their best.

Absenteeism, late coming, inadequacy of water for lesson delivery as well as early breaking have all led to the demotivation of both teachers and the pupils since they disrupt lessons and negatively affect lesson planning, delivery and syllabus coverage. It should be borne in mind that values held by society are in most cases reflected at school. The strategy of having pupils to bring water to school might be the root cause of absenteeism, late coming and the health problems among pupils. Pupils may opt to absent themselves from school if they fail to get water, or alternatively bring any type of water they can get dis-regarding whether it is contaminated or not.

Leaders in schools should be able to maintain an environment that is conducive to teaching and learning within their schools without violating policy (Ribbins and Sayer, 1997). Ryan and Cooper (2001) suggest that the school heads practice site-based management also known as school based management. This is a situation where school authorities do not necessarily have to kick problems to higher authorities but, make efforts to address the problem of water shortages while waiting for the ministry to act. School support systems such as School Development Associations (SDAs) and School Development Committees (SDCs) need to play an active role in assisting their schools to secure water. It has been established that the local school authorities and the Ministry of Education, Sports and Culture are both aware of the situation of water crisis. There is need for them to bring their heads together and take action in efforts to help the situation which seems to be getting out of hand. The high staff turnover may eventually lead to the affected schools failing to secure qualified teaching personnel, poor quality lesson delivery methods and finally, poor quality results.

Conclusion

The study has shown that water crisis is highly prevalent in urban schools in Harare with many of the schools having no water for the greater part of the past three years. Inadequacy and unavailability of water in schools render the school environment not conducive to learning since it will be difficult to ensure effective teaching and learning. This will contribute significantly to high failure rate of

pupils, and to demotivation of both teachers and pupils. The position of the responsible authorities was to ensure that schools did not operate without water for health reasons, but did not address the effects of the water crisis and of such an arrangement on educational delivery.

Recommendations

The study sought to make the following recommendations:

- The school local authorities, in conjunction with their SDAs and SDCs should create a conducive environment for both teachers and pupils so that effective teaching and learning takes place in their respective schools. This can be done by digging and constructing protected wells and water reservoirs.
- The Ministry of Education, Sports and Culture, together with the local government (City of Harare) should take action before major health problems manifest in schools otherwise a serious outbreak of water-borne diseases may result. This can be done by ensuring that schools get daily water supply at least to sustain their health and lessons. Time-tabled water cuts may be of help.
- The Ministry of Education, Sports and Culture, and Non-Governmental Organization (NGOs) who have interests of children at heart, should seriously consider sinking boreholes and constructing water reservoirs in schools.
- School authorities are to consider harvesting of rain water into storage containers since this water is safe to drink with minimum treatment.
- The Ministry of Health and Child Welfare should take control of the quality of water used in schools, and also provide safety services such as the distribution of water purification tablets and portable water containers. The Ministry is also encouraged to have regular inspection checks on the conditions of sanitary services in schools.

REFERENCES

- Best, J. W. and Khan, J. V. (1993). *Research in Education*. New York: Allyn and Bacon.
- Boxte, P. and Jack, S. (2008). *Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers in Qualitative Research*, p. 3-4; 544-559.
- Cohen, L. and Manion, L. (1994). *Research Methods in Education*. London: Routledge and Kegan Paul.
- Cooper, J. (2003). *Business Research Methods*, New Delhi: McGraw Hill Publishing.
- Glick, P. H. (1998). *The World Water: The Biennial Report on Fresh Water Resources*. Washington: Island Press.
- Faniran, A. (1981). *Water Resources Development in Nigeria* Nigeria: University of Ibadan.
- Katko, T. S. (1992). *The Development of Water Supply Associations in Finland and Its Significance for Developing Countries*. Washington: The World Bank.
- Leedy (1997). *Practical Research, Planning and Design*. New Jersey: Prentice Hall.
- Maslow, A. H. (1970). *Motivation and Personality*. New York: Harper and Row.
- McKendrick, J. (1981). *Water Supply And Wastewater Treatment*. Zimbabwe Science News Vol. 15:89-91.

- Mudege, N. (1997). *The Role of Government in Adjusting Economics, Urban Water supply in Zimbabwe*. Overseas development administration.
- Patton, M. C. (1990). *Qualitative Evaluation and Research Methods*. London: Sage.
- Ribbins,P. and Sayer,J.(1997) *Management and Leadership in Education: Leadership of Schools*. London: Cassell Publishers.
- Ryan,K. and Cooper,J.M. (2001) *Readings in Education*. New York: Houghton Mifflin Company.
- Scadder, T and Thayer, L. (2005). *The future of large dams: dealing with society, environmental, institutional and political costs*. London: Sterling, VA Earthscan.
- Schaeffer, R. L. Merdanhall, W. and Ott ,L. (1979). *Elementary Survey and Sampling*. Boston: Duxbury.
- Sergiovanni, T. J. and Carver, F. D. (1990). *The New School Executive, A Theory of Administration*, New York: Harper and Row, Publishers.
- Soler,J. Wearmouth,J. and Reid,G. (2002) *Contextualising Difficulties in Litteracy Development: Exploring Politics, Culture, Ethnicity and Ethics*. London: Routledge Falmer.
- The Herald, 22 January 2010, *Cholera Reaps More Lives in Harare Suburbs*. Harare: Zimpapers.
- The Herald, 13 August 2009, *University of Zimbabwe Closes Down Due to Water Crisis*. Harare: Zimpapers.
- The Herald, 22 June 2009, *State Concerned With Rate of Cholera Outbreak*. Harare: Zimpapers.
- UNESCO, (1990). *Trends and Development of Technical and Vocational Education*. Paris: UNESCO.

WHO Information Series on School Health: Document 6.1 of (2004)
World Health Organisation.

Will, C. (1997). *Looking After Our Land: Soil and Water Conservation in Drylan Africa*, London: Oxford.

Zimbabwe Broadcasting Corporation – *Main News*, 08 May 2008.



This work is licensed under a
Creative Commons
Attribution – NonCommercial - NoDerivs 4.0 License.

To view a copy of the license please see:
<http://creativecommons.org/licenses/by-nc-nd/4.0/>

This is a download from the BLDS Digital Library on OpenDocs
<http://opendocs.ids.ac.uk/opendocs/>